1.121), both of which cited defects in the "Under Claims" section of reference (d) Amendment A and reference (e) Amendment B to subject Application, respectively, the undersigned Applicant requests that the USPTO amend subject Application as follows:

Amendment B:

Cancel altogether and substitute with this **Amendment C**, which intends to cure all the reference (c) *Notice*-identified defects in the Claims section of Amendment B.

Under original Application 10/729,765 Claims section:

Cancel Claims 1 - 19 and substitute new Claims 20 - 38 as follows:

20. (New) A system to vacuum collect and vacuum convey mixed immiscible liquids from the source of, or the sources of, said mixed immiscible liquids into a separation facility, said mixed immiscible liquids being composed of a heavy phase and a light phase, the specific gravity of said heavy phase being greater than the specific gravity of said light phase, said separation facility being under continuous vacuum, to separate said mixed immiscible liquids into said heavy phase and said light phase in said separation facility, and once said heavy phase is separated from said light phase in said separation facility, to ultimately discharge said heavy phase to a heavy phase terminal facility, and to ultimately discharge said light phase to a light phase terminal facility, respectively, said heavy phase terminal facility and said light phase terminal facility both being under atmospheric pressure, comprising

(a) a mixed immiscible liquids influent stream, said mixed immiscible liquids influent stream being said mixed immiscible liquids that flow into said separation facility, and

(b) a vacuum tank, said vacuum tank having a predetermined volumetric holding capacity and a predetermined shape, and having a top and a bottom, said top of said vacuum tank being above said bottom of said vacuum tank,

(c) said vacuum tank containing inside a main gross phase separation chamber, a light phase sump, a heavy phase equalization chamber, and a heavy phase sump, said main gross phase separation chamber and said light phase sump and said heavy phase equalization chamber and said heavy phase sump each delimiting a respective space inside said vacuum tank, each said respective space having a top and a bottom and sides, each said respective top of each said respective space being above each said respective bottom of each said respective space, and each said respective top of each said respective space being open and uncovered,

(d) said vacuum tank also containing inside an air gap, said air gap being all space inside said vacuum tank below said top of said vacuum tank and above said top of said space of said main

gross phase separation chamber and above said top of said space of said light phase sump and above said top of said space of said heavy phase equalization chamber and above said top of said space of said heavy phase sump,

(e) said space of said light phase sump being isolated from said space of said main gross phase separation chamber and from said space of said heavy phase sump and from said space of said heavy phase equalization chamber,

(f) said space of said heavy phase sump being isolated from said space of said main gross phase separation chamber and from said space of said light phase sump and from said space of said heavy phase equalization chamber,

(g) said heavy phase equalization chamber being coupled to said bottom of said main gross phase separation chamber,

(h) said sides, or a portion of said sides, of said light phase sump abutting said space of said main gross phase separation chamber,

(i) said sides, or a portion of said sides, of said heavy phase sump abutting said space of said heavy phase equalization chamber, and

(j) a vacuum tank air evacuation outlet, said vacuum tank air evacuation outlet penetrating into said top of said vacuum tank, and

(k) a vacuum generating means, said vacuum generating means being coupled to said vacuum tank air evacuation outlet and causing and maintaining a continuous vacuum intensity in said vacuum tank, and

(l) a vacuum tank mixed immiscible liquids inlet, said vacuum tank mixed immiscible liquids inlet penetrating into said top of said vacuum tank, and

(m) a mixed immiscible liquids collection conduit, or a mixed immiscible liquids collection conduit network, said mixed immiscible liquids collection conduit or mixed immiscible liquids collection conduit network being coupled to said vacuum tank at said vacuum tank mixed immiscible liquids inlet and extending to said source, or said sources, of mixed immiscible liquids,

(n) said mixed immiscible liquids influent stream discharging into said main gross phase separation chamber for simultaneous quiescent differential specific gravity separation process and vacuum induced dissolved air flotation process, said mixed immiscible liquids influent stream dissociating into a separated light phase and a separated heavy phase in said main gross phase separation chamber, said separated light phase floating above said separated heavy phase,

(o) said light phase sump having a horizontal top edge weir along said top of said sides of said light phase sump along all said sides of said light phase sump that abut said space of said main gross phase separation chamber, said horizontal top edge weir of said light phase sump being below

said top of said vacuum tank, and establishing said top of said space of said main gross phase separation chamber and said top of said space of said light phase sump,

(p) said heavy phase sump having a horizontal top edge weir along said top of said sides of said heavy phase sump along all said sides of said heavy phase sump that abut said space of said heavy phase equalization chamber, said horizontal top edge weir of said heavy phase sump being slightly below said horizontal top edge weir of said light phase sump, and establishing said top of said space of said heavy phase equalization chamber and said top of said space of said heavy phase sump,

(q) said sides of said heavy phase equalization chamber and said sides of said heavy phase sump that abut said main gross phase separation chamber and/or said light phase sump having a respective top edge, said respective top edge of said sides of said heavy phase equalization chamber and/or said heavy phase sump being slightly above said top of said space of said main gross phase separation chamber and said top of said space of said light phase sump, and

(r) a light phase sump liquid surface level, said light phase sump liquid surface level being a horizontal plane and existing inside said light phase sump if the liquid surface level of said separated light phase in said main gross phase separation chamber is, or has been, above said top of said space of said main gross phase separation chamber, and

(s) a heavy phase sump liquid surface level, said heavy phase sump liquid surface level being a horizontal plane and existing inside said heavy phase sump if the liquid surface level of said separated heavy phase in said heavy phase equalization chamber is, or has been, above said top of said space of said heavy phase equalization chamber, and

(t) a light phase sump upper liquid surface level sensing means, said light phase sump upper liquid surface level sensing means being located inside said light phase sump below said top of said space of said light phase sump, and

(u) a light phase sump lower liquid surface level sensing means, said light phase sump lower liquid surface level sensing means being located inside said light phase sump below said light phase sump upper liquid surface level sensing means, and

(v) a heavy phase sump upper liquid surface level sensing means, said heavy phase sump upper liquid surface level sensing means being located inside said heavy phase sump below said top of said space of said heavy phase sump, and

(w) a heavy phase sump lower liquid surface level sensing means, said heavy phase sump lower liquid surface level sensing means being located inside said heavy phase sump below said heavy phase sump upper liquid surface level sensing means, and

(x) a light phase sump outlet, said light phase sump outlet being located below said light phase sump lower liquid surface level sensing means, and

(y) a heavy phase sump outlet, said heavy phase sump outlet being located below said heavy phase sump lower liquid surface level sensing means, and

(z) a light phase flow control means, said light phase flow control means being coupled to said light phase sump outlet and extracting said separated light phase from said light phase sump and delivering said light phase to said light phase terminal facility, and

(aa) a heavy phase flow control means, said heavy phase flow control means being coupled to said heavy phase sump outlet and extracting said separated heavy phase from said heavy phase sump and delivering said heavy phase to said heavy phase terminal facility,

(bb) said light phase sump upper liquid surface level sensing means initiating the operation of said light phase flow control means at any time said light phase sump liquid surface level is at, or above, the elevation of said light phase sump upper liquid surface level sensing means,

(cc) said light phase sump lower liquid surface level sensing means preventing the operation of said light phase flow control means at any time said light phase sump liquid surface level is at, or below, the elevation of said light phase sump lower liquid surface level sensing means,

(dd) said heavy phase sump upper liquid surface level sensing means initiating the operation of said heavy phase flow control means if said heavy phase sump liquid surface level is at, or above, the elevation of said heavy phase sump upper liquid surface level sensing means,

(ee) said heavy phase sump lower liquid surface level sensing means preventing the operation of said heavy phase flow control means if said heavy phase sump liquid surface level is at, or below, the elevation of said heavy phase sump lower liquid surface level sensing means, and

(ff) a vacuum generating means/vacuum tank coupling conduit, said vacuum generating means/vacuum tank coupling conduit coupling said vacuum generating means to said vacuum tank at said vacuum tank air evacuation outlet, and

(gg) a light phase flow control means/light phase sump coupling conduit, said light phase flow control means/light phase sump coupling conduit coupling said light phase flow control means to said light phase sump outlet, and

(hh) a heavy phase flow control means/heavy phase sump coupling conduit, said heavy phase flow control means/heavy phase sump coupling conduit coupling said heavy phase flow control means to said heavy phase sump outlet.

21. (New) The system of claim 20, further including a grit, sediment, particulate, and floating debris removal means, said grit, sediment, particulate and floating debris removal means being selected from the group consisting of filters, strainers, screens, and settling chambers, said grit, sediment, particulate and floating debris removal means being established in said mixed immiscible liquids influent stream prior to said vacuum tank mixed immiscible liquids inlet.

22. (New) The system of claim 20, further including a mixed immiscible liquids influent stream energy dissipation and flow distribution chamber, said mixed immiscible liquids influent stream energy dissipation and flow distribution chamber having a predetermined volume and a predetermined shape, and being coupled to said vacuum tank mixed immiscible liquids inlet, and having a top and a bottom plate, said bottom plate of said mixed immiscible liquids influent stream energy dissipation and flow distribution chamber being below said top of said mixed immiscible liquids influent stream energy dissipation and flow distribution chamber and being above said top of said space of said main gross phase separation chamber, and being comprised of an opening, or openings, of predetermined size or sizes, shape or shapes, and configuration or configurations.

23. (New) The system of claim 20, further including a combined entrained air purging and back siphonage prevention means, said combined entrained air purging and back siphonage prevention means being said air gap inside said vacuum tank.

24. (New) The system of claim 20, further including a separated light phase protection roof, said separated light phase protection roof comprising

(a) a roof panel, said roof panel being horizontal, and having sides, and having a near end edge, and having a distant end edge, and being above said top of said space of said main gross phase separation chamber, and being below said top of said vacuum tank,

(b) said roof panel being connected to said vacuum tank along said sides of said roof panel, said sides of said roof panel further being sealed continuously to said vacuum tank to be liquid tight,

(c) said near end edge of said roof panel being closer to said light phase sump than said distant end edge of said roof panel, and

(d) a roof panel near end edge elevated flow barrier wall, said roof panel near end edge elevated flow barrier wall being more or less vertical, and having sides, and having a top edge and a bottom edge,

(e) said bottom edge of said roof panel near end edge elevated flow barrier wall being below said top edge of said roof panel near end edge elevated flow barrier wall, and being connected to said near end edge of said roof panel along said bottom edge of said roof panel near end edge elevated flow barrier wall, and further being sealed continuously to said near end edge of said roof panel along said bottom edge of said roof panel near end edge elevated flow barrier wall to be liquid tight,

(f) said top edge of said roof panel near end edge elevated flow barrier wall being below said top of said vacuum tank,

(g) said sides of said roof panel near end edge elevated flow barrier wall being connected to said vacuum tank, and further being sealed continuously to said vacuum tank along said sides of said roof panel near end edge elevated flow barrier wall to be liquid tight.

25. (New) The system of claim 24, further including a separated light phase anti-disturbance partition wall, said separated light phase anti-disturbance partition wall being oriented upright, and having sides, and having a top edge and a bottom edge,

(a) said top edge of said separated light phase anti-disturbance partition wall being above said bottom edge of said separated light phase anti-disturbance partition wall, and being connected to said distant end edge of said roof panel along said top edge of said separated light phase anti-disturbance partition wall, and further being sealed continuously to said distant end edge of said roof panel along said top edge of said separated light phase anti-disturbance partition wall to be liquid tight,

(b) said bottom edge of said separated light phase anti-disturbance partition wall being below the interface of said separated light phase and said separated heavy phase in said main gross phase separation chamber,

(c) said sides of said separated light phase anti-disturbance partition wall being connected to said vacuum tank, and further being sealed continuously to said vacuum tank along said sides of said separated light phase anti-disturbance partition wall to be liquid tight.

26. (New) The system of claim 20, wherein said light phase sump upper liquid surface level sensing means and/or said heavy phase sump upper liquid surface level sensing means also prevents the operation of said vacuum generating means if

(a) said light phase sump liquid surface level is at, or above, said light phase sump upper liquid surface level sensing means, or

(b) said heavy phase sump liquid surface level is at, or above, said heavy phase sump upper liquid surface level sensing means.

27. (New) The system of claim 20, further including a quantity of high void space light phase separation enhancement media means, said quantity of high void space light phase separation enhancement media means being fixed inside said vacuum tank in said main gross phase separation chamber and being below the interface between said separated light phase and said separated heavy phase, said quantity of high void space light phase separation enhancement media means having void space and structure to permit laminar multi-directional flow of said mixed immiscible liquids through said quantity of high void space light phase separation enhancement media means at any time that said mixed immiscible liquids

flow into said main gross phase separation chamber, and having surface and presenting more than 40 square feet of the area of said surface of said quantity of high void space light phase separation enhancement media means per in-situ cubic foot of said quantity of high void space light phase separation enhancement media means, and being of a material that preferentially attracts said light phase to said quantity of high void space light phase separation enhancement media means, said quantity of high void space light phase separation enhancement media means attracting and temporarily holding said light phase at said surface of said quantity of high void space light phase separation enhancement media means until said light phase that attaches to said surface of said quantity of high void space light phase separation enhancement media means accumulates and grows to a size that said light phase detaches from said surface of said quantity of high void space light phase separation enhancement media means and ascends through said heavy phase by virtue of differences in specific gravity between said light phase and said heavy phase.

28. (New) The system of claim 20, further including a full light phase terminal facility triggered system operation interrupt and alarm means, said full light phase terminal facility triggered system operation interrupt and alarm means comprising a light phase terminal facility high free surface liquid level sensing means, said light phase terminal facility high free surface liquid level sensing means being installed inside said light phase terminal facility if said light phase terminal facility is a light phase storage container means, said light phase storage container means being selected from the group consisting of tanks, drums, barrels, vaults, containers, and combinations thereof, and having a light phase storage container means liquid level if said light phase storage container means contains said light phase, said light phase terminal facility high free surface liquid level sensing means simultaneously preventing the operation of said light phase flow control means if said light phase storage container means liquid level is at, or above, said light phase terminal facility high free surface liquid level sensing means, and energizing an alarm system means, said alarm system means being selected from the group consisting of local visual alarms, local audible alarms, combination local and visual and audible alarms, remote visual alarms, remote audible alarms, combination remote visual and audible alarms, and combinations thereof.

29. (New) The system of claim 20, further including a full heavy phase terminal facility triggered system operation interrupt and alarm means, said full heavy phase terminal facility triggered system operation interrupt and alarm means comprising a heavy phase terminal facility high free surface liquid level sensing means, said heavy phase terminal facility high free surface liquid level sensing means being installed inside said heavy phase terminal facility at any time said heavy phase terminal facility is a heavy phase storage container means, said heavy phase storage container means being selected from

the group consisting of tanks, drums, barrels, vaults, containers, and combinations thereof, and having a heavy phase storage container means liquid level at any time that said heavy phase storage container means contains said heavy phase, said heavy phase terminal facility high free surface liquid level sensing means simultaneously preventing the operation of said heavy phase flow control means at any time that said heavy phase storage container means liquid level is at, or above, said heavy phase terminal facility high free surface liquid level sensing means, and energizing an alarm system means, said alarm system means being selected from the group consisting of local visual alarms, local audible alarms, combination local and visual and audible alarms, remote visual alarms, remote audible alarms, combination remote visual and audible alarms, and combinations thereof.

30. (New) The system of claim 20, further including flow reversal prevention means, said flow reversal prevention means being selected from the group consisting of check valves, solenoid valves, and pneumatically operated shut-off valves, and combinations thereof, said flow reversal prevention means being installed in said vacuum generating means/vacuum tank coupling conduit, in said light phase flow control means/light phase sump coupling conduit, and in said heavy phase flow control means/heavy phase sump coupling conduit.

31. (New) The system of claim 20, further including an heavy phase supplemental separation means, said heavy phase supplemental separation means selected from the group consisting of coalescing filter separation means, ultrafiltration separation means, reverse osmosis separation means, centrifuge separation means, distillation separation means, microfiltration entrapment means, selective phase absorption means, selective phase adsorption means, and combinations thereof, said heavy phase supplemental separation means being established between said heavy phase flow control means and said heavy phase terminal facility, whereby said heavy phase supplemental separation means increases the degree of separation of said light phase from said heavy phase after said heavy phase exits said vacuum tank, said heavy phase supplemental separation means comprising

(a) a heavy phase supplemental separation means pretreated heavy phase inlet, said heavy phase supplemental separation means pretreated heavy phase inlet penetrating said heavy phase supplemental separation means, and

(b) a heavy phase supplemental separation means separated heavy phase outlet, said heavy phase supplemental separation means separated heavy phase outlet penetrating said heavy phase supplemental separation means, and

(c) provided that said heavy phase supplemental separation means is not said microfiltration entrapment means, or said selective phase absorption means, or said selective phase adsorption means, a heavy phase supplemental separation means separated light phase outlet, said heavy

phase supplemental separation means separated light phase outlet penetrating said heavy phase supplemental separation means, and

(d) a heavy phase supplemental separation means pretreated heavy phase inlet coupling conduit, said heavy phase supplemental separation means pretreated heavy phase inlet coupling conduit coupling said heavy phase supplemental separation means to said heavy phase flow control means, and

(e) a heavy phase supplemental separation means separated heavy phase outlet coupling conduit, said heavy phase supplemental separation means separated heavy phase outlet coupling conduit coupling said heavy phase supplemental separation means to said heavy phase terminal facility, and

(f) provided that said heavy phase supplemental separation means is not said microfiltration entrapment means, or said selective phase absorption means, or said selective phase adsorption means, a heavy phase supplemental separation means separated light phase outlet coupling conduit, said heavy phase supplemental separation means separated light phase outlet coupling conduit coupling said heavy phase supplemental separation means to said vacuum tank, and

(g) provided that said heavy phase supplemental separation means separated light phase outlet coupling conduit coupling exists, a heavy phase supplemental separation means separated heavy phase outlet coupling conduit flow reversal prevention means, said heavy phase supplemental separation means separated heavy phase outlet coupling conduit flow reversal prevention means being selected from the group consisting of check valves, solenoid valves, pneumatically operated shut-off valves, and combinations thereof, and being established in said heavy phase supplemental separation means separated heavy phase outlet coupling conduit.

32. (New) The system of claim 20, further including an light phase supplemental separation means, said light phase supplemental separation means selected from the group consisting of coalescing filter separation means, ultrafiltration separation means, reverse osmosis separation means, centrifuge separation means, distillation separation means, microfiltration entrapment means, selective phase absorption means, selective phase adsorption means, and combinations thereof, said light phase supplemental separation means being established between said light phase flow control means and said light phase terminal facility, whereby said light phase supplemental separation means increases the degree of separation of said heavy phase from said light phase after said light phase exits said vacuum tank, said light phase supplemental separation means comprising

(a) a light phase supplemental separation means pretreated light phase inlet, said light phase supplemental separation means pretreated light phase inlet penetrating said light phase supplemental separation means, and

(b) a light phase supplemental separation means separated light phase outlet, said light phase supplemental separation means separated light phase outlet penetrating said light phase supplemental separation means, and

(c) provided that said light phase supplemental separation means is not said microfiltration entrapment means, or said selective phase absorption means, or said selective phase adsorption means, a light phase supplemental separation means separated heavy phase outlet, said light phase supplemental separation means separated heavy phase outlet penetrating said light phase supplemental separation means, and

(d) a light phase supplemental separation means pretreated light phase inlet coupling conduit, said light phase supplemental separation means pretreated light phase inlet coupling conduit coupling said light phase supplemental separation means to said light phase flow control means, and

(e) a light phase supplemental separation means separated light phase outlet coupling conduit, said light phase supplemental separation means separated light phase outlet coupling conduit coupling said light phase supplemental separation means to said light phase terminal facility, and

(f) provided that said light phase supplemental separation means is not said microfiltration entrapment means, or said selective phase absorption means, or said selective phase adsorption means, a light phase supplemental separation means separated heavy phase outlet coupling conduit, said light phase supplemental separation means separated heavy phase outlet coupling conduit coupling said light phase supplemental separation means to said vacuum tank, and

(g) provided that said light phase supplemental separation means separated heavy phase outlet coupling conduit coupling exists, a light phase supplemental separation means separated light phase outlet coupling conduit flow reversal prevention means, said light phase supplemental separation means separated light phase outlet coupling conduit flow reversal prevention means being selected from the group consisting of check valves, solenoid valves, pneumatically operated shut-off valves, and combinations thereof, and being established in said light phase supplemental separation means separated light phase outlet coupling conduit.

33. (New) The system of claim 20, further including a mixed immiscible liquids collection conduit flow control valve means, said mixed immiscible liquids collection conduit flow control valve means being selected from the group consisting of manually operated valves, mechanically operated valves, electro-mechanically operated valves, and pneumatically operated valves, and combination thereof, said mixed immiscible liquids collection conduit flow control valve means being installed in said mixed immiscible liquids collection conduit, or, if said mixed immiscible liquids collection conduit network exists, in each branch conduit of said mixed immiscible liquids collection conduit network.

34. (New) The system of claim 20, further including a vacuum sensing means, said vacuum sensing means being coupled to said vacuum tank and to said vacuum generating means, and being used to maintain a constant vacuum intensity inside said vacuum tank as created by said vacuum generating means.

35. (New) The system of claim 20, further including a vacuum tank positive pressure prevention means, said vacuum tank positive pressure prevention means being selected from the group consisting of pressure relief valves and check valves, and combinations thereof, and being coupled to said vacuum tank and, if said light phase terminal facility and/or if said heavy phase terminal facility exists, and if said light phase terminal facility and/or said heavy phase terminal facility is a storage container means, said storage container means being selected from the group consisting of tanks, drums, barrels, vaults, containers, and combinations thereof, and if a vent conduit in said storage container means exists, being coupled to said vent conduit in said storage container means.

36. (New) The system of claim 20, wherein the exhaust air exiting from said vacuum generating means is coupled to said light phase terminal facility or to said heavy phase terminal facility, if said light phase terminal facility and/or if said heavy phase terminal facility exists, and if said light phase terminal facility and/or said light phase terminal facility is a storage container means, said storage container means being selected from the group consisting of tanks, drums, barrels, vaults, containers, and combinations thereof, and if a vent conduit in said storage container means exists, by said vent conduit in said storage container means.

37. (New) The system of claim 20, further including a vacuum tank maximum vacuum intensity regulating means, said vacuum tank maximum vacuum intensity regulating means being selected from the group consisting of vacuum relief valves and combinations thereof, and being coupled to said top of said vacuum tank.

38. (New) The system of claim 20, further including a heavy phase sump high liquid level activated vacuum tank vacuum purging means, said heavy phase sump high liquid level activated vacuum tank vacuum purging means being selected from the group consisting of solenoid valves, float actuated valves, and combinations thereof, said heavy phase sump high liquid level activated vacuum tank vacuum purging means having an inlet opening and outlet opening, said inlet opening of said heavy phase sump high liquid level activated vacuum tank vacuum purging means being coupled to the atmosphere, said outlet opening of said heavy phase sump high liquid level activated vacuum tank vacuum purging means being coupled to said air gap inside said vacuum tank, said heavy phase sump

high liquid level activated vacuum tank vacuum purging means isolating said air gap inside said vacuum tank from the atmosphere external to said vacuum tank at any time that said heavy phase sump liquid surface level is below a heavy phase sump high liquid surface level sensing means, said heavy phase sump high liquid surface level sensing means being located inside said heavy phase sump above said heavy phase sump upper liquid surface level sensing means and below said top of said space of said heavy phase sump, said heavy phase sump high liquid surface level sensing means causing said heavy phase sump high liquid level activated vacuum tank vacuum purging means to open at any time that said heavy phase sump liquid surface level is at, or above, said heavy phase sump high liquid surface level sensing means.

SPECIAL NOTE FOR EXAMINER: Since US Patent 5,679,258 Claim 1(g), Claim 1(n), and Claim 1(r) all employ now-objectionable "...at any time..." text that original Application 10/729,765 incorporates, Applicant therefore requests Examiner's assistance to effectuate proper verbiage in Claims 20(r), 20(s), 20(dd), 20(ee), 26, and 28 if Examiner determines that Applicant's suggested revisions therein remain objectionable.